

PREVENTION AND MANAGEMENT OF PRESSURE ULCERS AND MOISTURE LESIONS IN THE BARIATRIC PATIENT

Obese patients are at high risk of skin breakdown and the development of moisture lesions and pressure ulcers, due to a variety of intrinsic and extrinsic factors. Prevention and management of ulceration requires appropriate equipment and education around patient hygiene, repositioning, support surfaces, wound dressings and toileting, for patients and clinicians alike.

The term 'bariatric' is derived from the Greek expression *baros*, referring literally to weight or measurement, and tends to be used to refer to obese patients (Camden, 2009). In adults, body mass index (BMI) is frequently used as a measure of overweight and obesity, with overweight being defined as a BMI of 25–29.9 kg/m² and obesity as a BMI \geq 30 kg/m² (NICE, 2006). A somewhat more generalised definition of a bariatric person is anyone who has limitations in health due to physical size and reduced mobility (Bushard, 2002).

Prevalence and challenges

In the UK, obesity levels have risen threefold between 1980 and 2001. By 2007, 56% of women and 65% of men in the UK were overweight or obese (NHS Information Centre for Health and Social Care, 2009). The NHS information Centre for Health and Social Care (2009) found that, in 2008, 24% of adults aged 16 or older in England were classified as obese, representing an overall increase of 15% since 1993.

The care of the bariatric patient increasingly poses practical and financial challenges to NHS organisations. However, the biggest cost is to the patients and their family, as the bariatric patient faces the loss of independence, social isolation, depression and the risk of the development of multiple health comorbidities. One area of high risk is skin breakdown and the development of moisture lesions and pressure ulcers (PUs). Bariatric patients are more prone to pressure damage due to a variety of factors, both intrinsic and extrinsic (Figures 1 and 2).

Intrinsic factors

Excess weight has an immense impact on a person's health. It is frequently associated with multiple comorbidities, e.g. an increase in diabetes, osteoarthritis, cardiovascular disease, respiratory compromise, intra-abdominal pressure, skin conditions and mental illness (Camden, 2009). Skin changes in the bariatric person increase the risk of skin damage, impaired healing, and development of skin conditions

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— all of which can precede the development of moisture lesions and PUs (Gagnon, 2015; Krasner et al, 2006a; Krasner et al, 2006b).

Obesity causes changes in sebaceous glands and sebum production, the lymphatic system, collagen structure and function, micro- and macro-circulation, and subcutaneous fat (Yosipovitch et al, 2007). Increased adipose tissue leads to increased body mass and number of skin folds, as well as a higher rate of trans-epidermal water loss (TEWL), which frequently dries the skin and impairs its barrier function (Rush, 2009). Bariatric patients are also prone to excessive sweating and heat retention so that, when excessive fluid lies within the skin folds, the dry skin is more likely to become macerated, excoriated or infected. Prevention of

skin breakdown requires that patients more frequently perform skin hygiene, which can be made difficult for patients by reduced mobility, inability to lift heavy skin folds and issues observing their skin in these areas.

Excessive weight increases the strain on the heart and lungs' abilities to transport nutrients and oxygen throughout the body. With impaired systemic perfusion, the blood supply to the adipose tissue may not be sufficient to provide appropriate oxygen and nutrient levels, resulting in an increased risk of skin breakdown and delayed healing if damage occurs (Krasner, 2006a; Porkorny, 2008). Many bariatric patients may experience breathing difficulties, which further complicate oxygen transportation issues. In addition, the heavy abdomen associated with

obesity can put pressure on the patient's legs, occluding capillaries and decreasing oxygen flow to distal tissue, increasing the risk of ulceration on limbs.

The bariatric patient is also predisposed to multiple comorbidities associated with excessive weight — e.g. diabetes, hypertension, vascular disease, hyperlipidaemia and arthritic diseases — all of which further increase the bariatric patient's risks of skin damage. In addition, patients who have limited mobility may find it difficult to change position, thus increasing the risk of ulceration. Finally, the bariatric patient's diet may be significantly compromised in terms of essential nutrients — e.g. proteins, vitamins or mineral stores — which negatively affects the ability to maintain healthy skin, and impedes wound healing

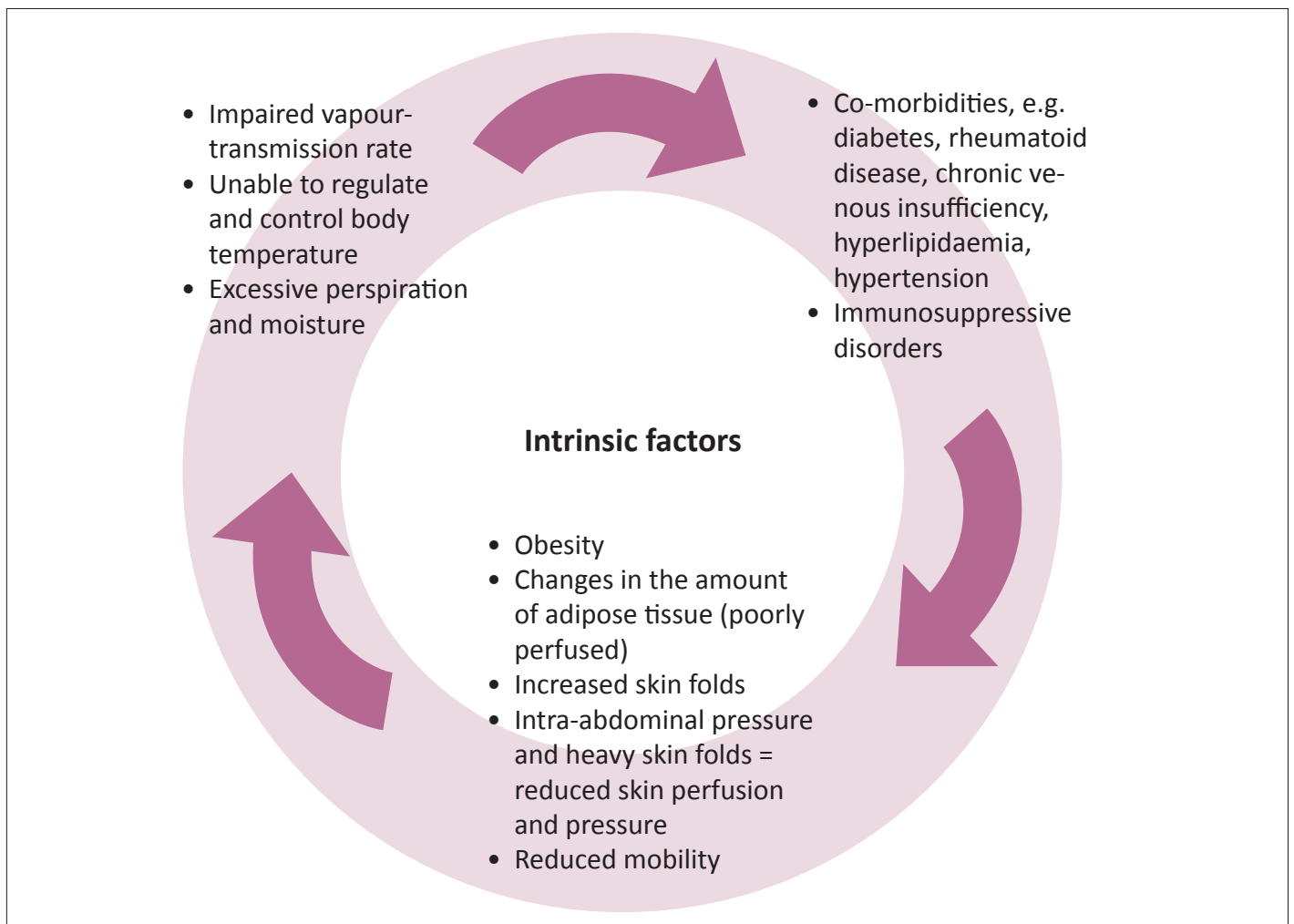


Figure 1. Intrinsic factors that make patients at risk for skin breakdown.

Extrinsic factors

External factors, some of which are preventable, further complicate the situation where skin is already at risk due to intrinsic factors. For example, lack of clinician knowledge and skills in the safe and effective repositioning of the patient increase the risk of skin damage from shear and friction due to poor moving and handling techniques. This is further exacerbated by a lack of specialist bariatric equipment, such as hoists, slings and slide sheets.

Patients, clinicians and carers must take extreme care with the positioning of medical devices (e.g. catheters and tubing), which can damage skin through repeated shear and friction and unresolved pressure on the skin surface.

Inappropriate and poor-fitting clothing and footwear also increase the risk of PU development by presenting unresolved pressure, or frequent shear and friction.

Prevention and management

The prevention and management of ulceration in the bariatric patient centres on the multidisciplinary team, the patient and family. Adequate and appropriate resources are pivotal to the safe and effective care of this patient group. Holistic assessment should be regular and frequent, and the care plan effective and consistent.

Skin care and patient hygiene

Profuse sweating and resultant excess skin moisture poses several problems:

- ▶▶ It collects in skin folds,

compromising the general health of the skin

- ▶▶ Bacterial, fungal and viral microorganisms rapidly multiply in the warm, moist environment
- ▶▶ The microbial load can lead to itching (pruritus) and burning sensations, which patients may scratch, resulting in superficial trauma to already compromised skin (Gallagher, 2005)
- ▶▶ Microorganisms can then enter the breaks in the skin, leading to cellulitis.

It is, therefore, essential that steps be taken to reduce overgrowth of microorganisms and control odour. In order to ensure that skin folds remain clean, dry and protected at all times, personal hygiene should be scheduled at minimum day at night. Patients should avoid heavily perfumed soap/body wash

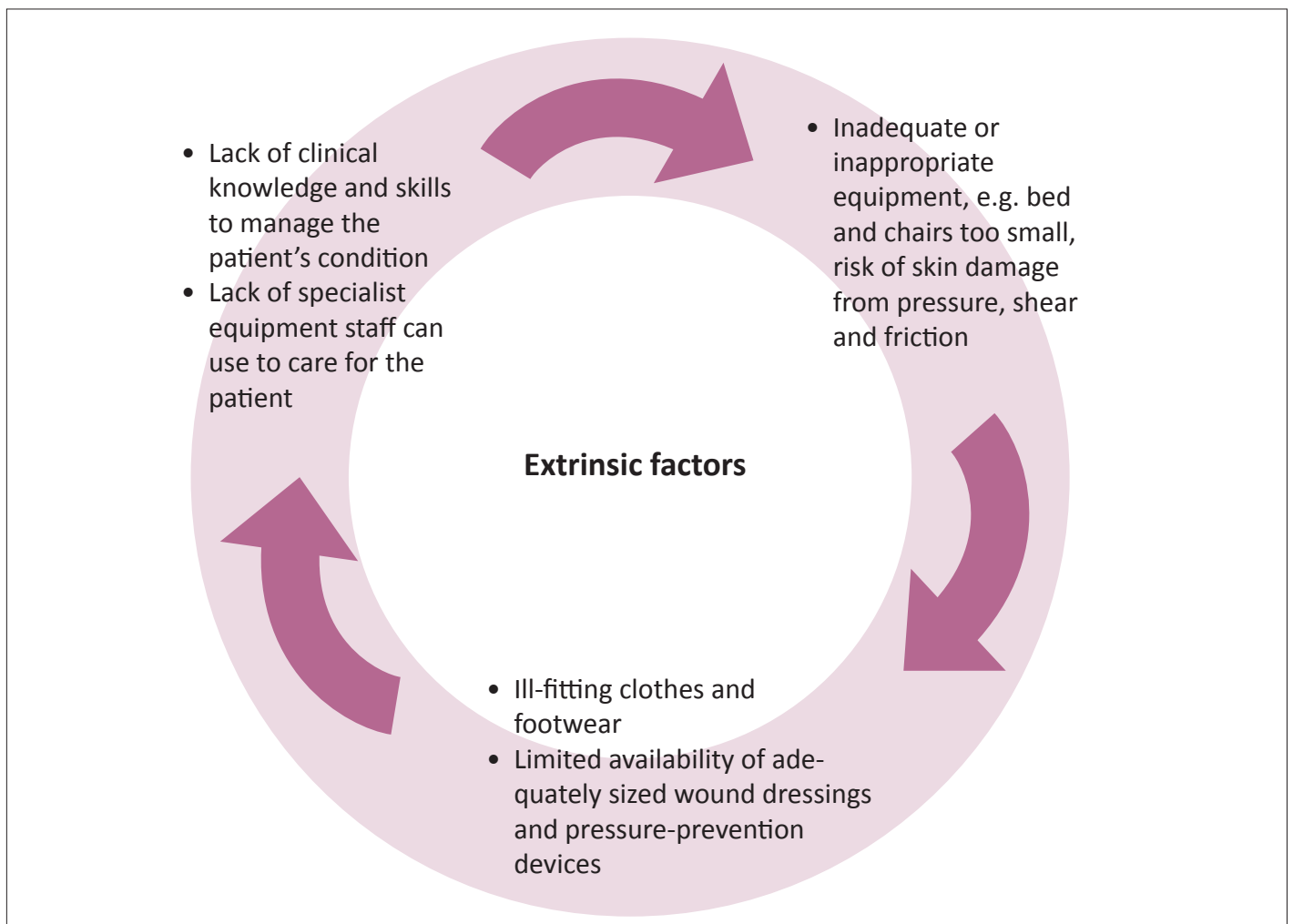


Figure 2. Extrinsic factors that make patients at risk for skin breakdown.

and alcohol-based cleaners, as they can irritate and dry out the skin. Emollients should be used to prevent skin drying and provide skin barrier protection, to maintain skin integrity. The bariatric patient may need assistance with this due to the increased surface area, potential skin folds and potential inability to reach all areas.

Patients and carers must also be equipped with the appropriate information, advice and resources, to help them recognise the warning signs of skin problems. For example, the first signs of a problem with the skin may be itching, burning, pain, odour or redness — or a combination of these — and, if left untreated, the patient could experience swelling, erosion, crusting and the development of a wound.

Repositioning

Many bariatric patients have some degree of immobility, which is a contributory factor to PU development in particular (Lindgren et al, 2004). Common immobility-related complications include skin breakdown, cardiac deconditioning, deep vein thrombosis, muscle atrophy, urinary stasis, constipation, pain management problems and depression. Immobility also contributes to pulmonary complications, such as atelectasis and pneumonia (Camden, 2009).

It is, therefore, crucial that the patient's weight be shifted regularly, whether they are cared for in bed, wheelchair or chair. Shear and friction should be minimised during repositioning using appropriately sized slide sheets or repositioning sheets, and the correct number of staff/carers trained in their use (Mastrogiovanni et al, 2003; Rush, 2009). For example, repositioning bariatric patients around the bed often takes three or more people. Appropriate hoists must have

a higher weight capacity, and slings must be wide enough to accommodate the wider and heavier limbs, thus reducing trauma to the skin areas when changing position. Overhead gantries for hoisting are the preferred option for this patient group, as they increase independence, assist with even weight distribution and are preferred for comfort (Disabled Living Foundation (DLF), 2006).

Pressure-reducing surfaces

To promote patient independence and empowerment — and help prevent skin breakdown — ensure surfaces and beds are fit for purpose, and that patients are appropriately shown how to correctly use this equipment.

Bariatric profiling beds must have the ability to change height, and be fitted with an adjustable back rest and knee break. These features enhance patient comfort and reduce the pressure of the heavy abdomen upon the limbs, lessening the risk of capillary occlusion and diminished oxygen levels to the distal tissue. Beds must also be fitted with an appropriate pressure-reducing mattress, to allow the alternating of high and low pressures. However, a dynamic mattress may impede patient independence due to possible difficulties with moving independently on this system; the implementation of a static mattress would reduce this difficulty. The choice of bariatric bed and mattress is important to the patient's ability to sleep comfortably in bed. Otherwise, the patient might revert to sleeping in a chair, which increases the risk of skin damage.

For typical sitting, the chair and its cushioning should be fit for purpose, accommodating the patient's size, shape and weight. A dual-motor chair assists in the patient's being able to rise independently from sitting, and

will raise limbs during sitting, helping to prevent dependant leg oedema. The chair should also be fitted with an appropriate pressure-relieving cushion to reduce the risk of potential skin damage (Bishop, 2009).

Wound dressings

If the patient should develop a PU or moisture lesion, dressings will be required to promote healing and prevent wound contamination. Dressings should be selected after a holistic assessment, to ensure the dressing is clinically appropriate, and that it is the correct size and has the ability to conform to large surface areas and within skin folds. If these criteria are not met, dressings may need to be replaced more frequently. Furthermore, the wound(s) may not heal and, in fact, may further deteriorate, resulting in increased risk to the patient and reduced quality of life.

Toileting

Due to their reduced dexterity, mobility and increased body size, many bariatric patients find toileting difficult. The toilet and the environment need to be large enough to accommodate their needs, not only for sitting and standing, but also to allow cleaning after toileting. Offering toilets with adjustable raised seats or toilets that complete a washing and drying cycle after elimination will make these actions easier and safer, and reduce the risk of skin damage from contamination and poor hygiene.

To provide a high standard of care for the bariatric patient, it is essential that all members of the multidisciplinary team assessing and delivering the care are educated and supported. For example, care providers are often fearful of injuring the patient or themselves when repositioning the patient and carrying out care — education should be aimed at devices and

techniques for ensuring everyone's safety and comfort, as well as the details of appropriate clinical care.

Education and support

Educating staff on the management of bariatric patients is the key to eliminating the fears of being injured while providing care, as well as understanding how to prevent and manage skin breakdown, moisture lesions and PUs. Topics should include safe moving and handling techniques, correct use of specialist equipment and aids, risk factors associated with the care of the patients, skin integrity and the prevention of pressure ulceration. Patients also require this support and education, in order to empower them and assist in the prevention of ulceration.

The healthcare organisation must fully equip clinicians, and provide bariatric specialists, strategies/policies and systems to safely and effectively manage this patient group. A collaborative relationship between the bariatric team and the wound care team best serves the training needs of clinicians and the clinical care needs of bariatric patients.

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